What is claimed is:

1. A positioning apparatus, wherein

a plug member (12) inserted into a positioning hole (5) formed in a second block (2) is projected from a first block (1),

a plurality of slide portions (61, 61) opposed to each other across the plug member (12) are arranged around the plug member (12) movably in a first radial direction (D1) substantially orthogonal to the opposed direction of the slide portions (61, 61),

an annular pressing member (15) which is allowed to diametrically expand and diametrically contract is arranged around an outer periphery of the slide portions (61, 61), and

a drive means (D) drives the slide portions (61, 61) to diametrically expand the pressing member(15) in a second radial direction (D2) which is the opposed direction and to press the pressing member (15) against a peripheral surface of the positioning hole (5), whereby the slide portions (61, 61) are moved in the first radial direction (D1) with respect to the plug member (12).

2. The positioning apparatus as set forth in claim 1, wherein

inclined outer surfaces (13, 13) which get closer to an axis of the plug member (12) toward a leading end are formed on an outer surfaces of the slide portions (61, 61),

an inclined inner surface (17) which is allowed to make a tapering engagement with the inclined outer surfaces (13, 13) is formed on the pressing member (15),

a drive member (21) is inserted into the plug member (12) axially movably, and the drive member (21) is connected to the pressing member (15),

the drive member (21) moves the pressing member (15) toward a base end for locking to expand the pressing member (15) in the second radial direction (D2) by the tapering engagement and bring the pressing member(15) into close contact with the

inner peripheral surface of the positioning hole (5), and

the drive member (21) also moves the pressing member (15) toward the leading end for releasing to cancel the expanded condition of the pressing member (15) and cancel the closely contacted condition of the pressing member (15).

3. The positioning apparatus as set forth in claim 1, wherein

inclined outer surfaces (64, 64) which get closer to an axis of the plug member (12) toward a leading end and oppose each other in the second radial direction (D2) are formed on the plug member (12),

the slide portions (61, 61) are allowed to make a tapering engagement with the inclined outer surfaces (64, 64) from the leading end side,

a drive member (21) is inserted into the plug member (12) axially movably, and the drive member (21) is connected to the slide portions (61, 61),

the drive member (21) moves the slide portions (61, 61) toward a base end for locking to diametrically expand the pressing member (15) in the second radial direction (D2) by the tapering engagement and bring the pressing member (15) into close contact with the inner peripheral surface of the positioning hole (5), and

the drive member (21) also moves the slide portions (61, 61) toward the leading end for releasing to cancel the expanded condition of the pressing member (15) and cancel the closely contacted condition of the pressing member (15).

4. The positioning apparatus as set forth in claim 1, wherein

the pressing member (15) is formed into an annular shape.

5. The positioning apparatus as set forth in claim 4, wherein

gaps (A, A) are formed between the pressing member (15) and the plug member (12) in the first radial direction (D1).

6. The positioning apparatus as set forth in claim 4, wherein

a slit (51) is formed in the pressing member (15) to allow the pressing member

(15) to deform in a diametrically expanding direction and a diametrically contracting direction.

7. The positioning apparatus as set forth in claim 4, wherein

the pressing member (15) is formed in an annularly seamless manner.

8. The positioning apparatus as set forth in claim 7, wherein

two contact portions (61a, 61a) allowed to come into contact with an inner surface of the pressing member (15) and an escape portion (61b) arranged between the two contact portions (61a, 61a) are formed on an outer surface of each of the slide portions (61, 61) circumferentially side by side, and

a gap (B) is formed between the escape portion (61b) and the pressing member (15).

9. A positioning apparatus, wherein

a plug member (12) inserted into a positioning hole (5) formed in a second block (2) is projected from a first block (1),

a plurality of slide portions (61, 61) opposed to each other across the plug member (12) are arranged around the plug member (12) movably in a first radial direction (D1) substantially orthogonal to the opposed direction of the slide portions (61, 61) and are allowed to diametrically expand and diametrically contract in a second radial direction (D2) which is the opposed direction, and

a drive means (D) drives the slide portions (61, 61) to diametrically expand in the second radial direction (D2) and to press against a peripheral surface of the positioning hole (5), whereby the slide portions (61, 61) are moved in the first radial direction (D1) with respect to the plug member (12).

10. The positioning apparatus as set forth in claim 9, wherein

inclined outer surfaces (64, 64) which get closer to an axis of the plug member (12) toward a leading end and oppose each other in the second radial direction (D2) are

formed on the plug member (12),

a cylindrical connecting member (81) is arranged around an outer periphery of the plug member (12),

the slide portions (61, 61) are supported on the connecting member (81) movably in the second radial direction (D2), and are allowed to make a tapering engagement with the inclined outer surfaces (64, 64) from the leading end side,

a drive member (21) is inserted into the plug member (12) axially movably, and the drive member (21) is connected to the connecting member (81),

the drive member (21) moves the slide portions (61, 61) toward a base end for locking to expand the slide portions (61, 61) in the second radial direction (D2) by the tapering engagement and bring the slide portions (61, 61) into close contact with an inner peripheral surface of the positioning hole (5), and

the drive member (21) also moves the slide portions (61, 61) toward the leading end for releasing to cancel the expanded condition of the slide portions (61, 61) and cancel the closely contacted condition of the slide portions (61, 61).

11. The positioning apparatus as set forth in claim 10, wherein

an urging member (84) is provided, which applies resilient force against the slide portions (61, 61) in a diametrically contracting direction.

12. The positioning apparatus as set forth in claim 9, wherein

two contact portions (61a, 61a) and an escape portion (61b) arranged between the two contact portions (61a, 61a) are formed on an outer surface of each of the slide portions (61, 61) circumferentially side by side, and

when the contact portions (61a, 61a) come into contact with an inner peripheral surface of the positioning hole (5), a gap (B) is formed between the escape portion (61b) and the inner peripheral surface of the positioning hole (5).

13. A clamping system, wherein

the positioning apparatus as set forth in claim 1 or claim 9 is provided.

14. A clamping system, wherein

a plurality of positioning apparatuses are provided and at least one of them is the positioning apparatus as set forth in claim 1 or claim 9.